Gender Differences in Venture Capital Funding on ABC's Shark Tank

THESIS

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Tyler Jordon Hunt

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Dissertation Committee:

Patricia West

Ralph Greco

Abstract

ABC Network's reality television show "Shark Tank" gives entrepreneurs the opportunity to pitch their ideas to a panel of investors for the chance to receive funding. Each season more than 35,000 entrepreneurs apply to be on the show. Whether they receive an offer for funding or not, they still stand to gain the free advertising that comes with appearing on a show with more than seven million average viewers per episode. Although there are abundant resources for knowledge on Shark Tank, women in venture capital, and behavioral gender differences, sources are lacking on gender differences in venture capital funding on Shark Tank. The purpose of this research is to determine if differences exist in how entrepreneurs receive funding based on their gender. To analyze this, I utilized two publicly available datasets containing information on the pitches aired on the show. These datasets were cleansed and merged to form one data set with thirty-five variables spanning across four seasons and 235 pitches. I found that despite having comparable or better businesses than their male counterparts, women ask for lower valuations and accept deals at a lesser percentage of what they asked for compared to men. Explanations for these differences were considered in regards to the industry, sharks, entrepreneurs, and society. This information can be applied to benefit entrepreneurs in search of venture capital, and specifically, future contestants on the show. Going forward this research can be improved by coding for more variables and including data from the rest of the seasons.

Acknowledgments

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Vita

May 2012 .....Milton-Union High School

May 2016 .....B.S.B.A. Finance, The Ohio State University Fisher College of Business

Fields of Study

Major Field: Business Administration

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Chapter 1: Introduction

Venture capital is funding provided to help new businesses reach their goals. Those that provide this funding receive an equity stake in the company and often earn a say in the management of the business (Morris 2007). The term was first used by John Whitney in 1946 and examples of venture capitalism are found throughout history including the beginnings of General Electric and the Transcontinental Railroad (Price 2014). Venture capitalism helps entrepreneurs get their ideas up and running and is still alive and well today as $58.8 billion was invested in venture capital in the United States in 2015 according to the National Venture Capital Association (Veghte 2015).

Shark Tank: The Television Series

ABC Network's reality show "Shark Tank" takes this concept of venture capitalism and televises it to the masses. The show first aired in August of 2009 and is currently on its seventh season with over 130 episodes (ABC Network). Viewers watch as entrepreneurs pitch their business ideas to a panel of investors in hopes of receiving funding. These investors are referred to as "sharks". Funding can be given in exchange for an equity stake in the company or future royalties on the product and can be received from none, one, or multiple sharks. Additionally, the entrepreneurs gain the mentorship, experience, and networks of the sharks who choose to invest in them. Sharks receive payment for appearing on the show, but the money they invest is their own (Entis 2015).

The Sharks

The show's sharks consist of wealthy entrepreneurs who have already reached success through their own ventures. The sharks come from a variety of business

backgrounds from fashion and technology to real estate and media. The wealthiest of the sharks, Mark Cuban, has attained $2.5 billion dollars through various small businesses, Broadcast.com, as well as ownership of the Dallas Mavericks NBA team (Bio 2015). Kevin O'Leary is the next in line regarding wealth with a net worth of $400 million. Kevin attained his wealth through his company SoftKey Software and his private investments (ABC Network). Daymond John, the owner of the apparel line FUBU, is also a shark and has a net worth of $250 million (ABC Network). The last male shark is Robert Herjavec, with a net worth of $200 million from his technology and securities businesses.

There are only two female sharks, Barbara Corcoran and Lori Greiner. Barbara has a net worth of $80 million, which she gained through real estate investments and her firm, The Corcoran Group. Lori Greiner has a net worth of $50 million, which she earned as an inventor, author, and QVC host. Sharks on the show have changed throughout the seasons, and occasionally guest sharks are brought on. For example, Nick Woodman, founder of GoPro, appeared as a guest shark in season six (GoPro 2014).

The Pitch

Applying to participate in the show is highly competitive, and even if you are accepted to audition there is no guarantee your pitch will be aired. Each season more than 35,000 entrepreneurs apply and less than 150 of them are brought to the show for auditions (Aho 2014). The entrepreneurs face the added difficulty of not only needing a sound product, but also an entertainment factor because, after all, it is a television show. There are numerous ways to apply from emails, video submissions, and open casting

calls held at a variety of locations (ABC Network). Many entrepreneurs seek to get onto the show strictly for the increased awareness of their product as each episode averages over seven million viewers (Morabito 2014). Regardless of whether they receive an offer or not, they stand to benefit from being in the public spotlight.

Entrepreneurs enter the show and have one hour to pitch their ideas to the sharks for funding. In every pitch, the investors must tell the sharks their company valuation. For example, an entrepreneur asking for $100,000 in exchange for a 10% stake is ultimately valuing their business at $1,000,000. Typically this hour-long pitch is edited down to ten minutes for television airing (Altucher 2012). During the pitch, the sharks are allowed to ask questions and probe the entrepreneur's business model. Not only is it important that the idea is a viable business opportunity but also that the entrepreneur is someone the shark would want to work with.

The sharks ask both qualitative and quantitative questions ranging from the entrepreneurs past experiences and personal stories to their revenues and current debt levels (Newlands 2015). After the pitch and after questions the sharks must decide if they want to extend a funding offer to the entrepreneur or not. Bargaining is permitted and often the agreed upon offer is different from the offer requested in the pitch. If a deal is struck entrepreneurs and sharks will shake hands and the episode will continue with the next pitch.

However, this handshake is not binding. Due diligence is conducted after the show and if any information about the pitch or the company's application is found to be false the agreement is not upheld. Regardless of whether the entrepreneurs pass due

diligence or not, both the sharks and the entrepreneurs are free to opt out at any time for any reason (Aho 2014). In an interview with the New York Post Kevin O'Leary stated: "I only close one-third of the hands that I shake" (Daly 2013).

Chapter 2: Purpose

Despite Shark Tank being a television show intended for entertainment, there are still underlying lessons in behavioral science, entrepreneurship, and venture capital. At the end of the day, these are real businesses and the sharks are there to make real returns on their investments. The purpose of this research is to examine the differences in venture capital funding on ABC's Shark Tank based on the entrepreneur's gender. I approached this topic with three questions in mind: do differences exist in how entrepreneurs receive funding based on their gender, if so what is causing these differences, and lastly how can these differences be addressed.

Chapter 3: Literature Review

The process of getting onto the show involves an application, an open audition, a pitch to the sharks, and lastly being selected to be aired on an episode. Resources are available online where entrepreneurs who have been through the process provide advice to others who wish to do the same. One thing to remember, especially early on in the process when there are 35,000 other applicants, is to keep in mind that Shark Tank is a reality television show. To stand out in the process, there must be an interesting aspect to one's story (Entis 2015). Not only should the pitch be entertaining, but it should be easy to understand. During the first audition entrepreneurs only have 60 seconds to pitch their

product. In just one minute they must convey what their product is, how it will make money, and how much they want from the sharks (Edwards 2014).

Once an entrepreneur has navigated through the process, one of the most common pieces of advice presented is to apply for a provisional patent if there is a physical product (Shark Tank Blog 2012). Doing so can send a positive signal and it is seen as a beneficial asset when pitching to the sharks. Having a patent also helps to protect the product from imitation if the pitch is selected to be aired.

On top of a patent, if the product is tangible, it is recommended to bring it so that the sharks can experience it firsthand. This is just one of many techniques that can be used to enhance the power of the entrepreneur's pitch. A study conducted by James Wolf of Illinois State University, Hal Arkes of The Ohio State University, and Waleed A. Muhanna of The Ohio State University found that touching a product can foster pre-ownership attachments and increase potential valuations. (Wolf, Arkes, Muhanna 2008)

In regards to women on Shark Tank, Kevin O'Leary has stated that his most successful investments have been in companies run by women. According to him, his portfolio consists of roughly equal proportions of men and women driven companies, yet the only ones that are profitable are the ones run by women. When asked why this was occurring Kevin did not have an answer but explained that it was not due to a specific industry (Kutner 2013).

Gender Differences

An often used metric when discussing differences between men and women is the wage gap. The American Association of University Women reports in its Simple Truth

report using US Census Bureau numbers that in 2014 women earned 79% of what men did (AAUW 2014). The Census Bureau has also reported in its Survey of Business Owners that men own almost twice the number of businesses as women (United States Census Bureau). In regards to specifically small businesses, women entrepreneurs are the majority owners of roughly 36% of those in the United States.

Not only do men lead in total businesses overall and in small businesses, but also among the very largest. Among the Fortune 500, only 24 of the companies have female CEO's, and only 27 among the Fortune 1000 (Fairchild 2014). Of these female CEO's, the most common college major among them was engineering, yet in 2014 women only made up 18% of STEM bachelor's degrees graduates (National Student Clearinghouse Research Center 2015).

When pitching to the sharks, the entrepreneurs are essentially in an interview representing themselves and their business. With this in consideration, I wanted to look into hiring practices and disparities among gender. A study completed by Barbara Reskin of Harvard University found that when gender is unknown in the hiring process, women and minorities are more likely to be selected (Reskin 2013). This is not a new phenomenon as a study conducted in 1977 found that when photographs on applications were no longer considered in the hiring process, the number of women and minorities hired increased (Hagensick 1978). This idea was echoed once again within symphony orchestras, where a study found that when using a barrier to mask all but the music of applicants, female musicians were hired more often (Goldin & Rouse, 1997).

The Diana Project, supported by Babson College, researches women entrepreneurs and small business growth. In their most recent report they found that women-led firms made up only 2.7% of all venture-backed companies from 2011 to 2013, but those that did earned 12% more in revenue (Diana Project 2004). When looking at the firms that make these capital investments only 4.2% of them have senior partners who are women (Primack 2014). It has also been found that businesses with male exclusive leadership teams seeking funding were four times more likely to get funded compared to those with a woman on the team (Diana Project 2014). This idea is supported in a Harvard study where male entrepreneurs were found to be 60% more likely to win in a business pitch competition compared to women (Conner 2014).

Behavioral Differences

Studies have also found differences in risk taking among genders. However, it is important to note that what is found of a group is not necessarily true of every individual. In a study considering risk propensity toward gambling, recreation, and health, women were found to be more risk averse than men. The authors of this study found that women perceive a higher likelihood of negative outcomes and a smaller expectation of potential enjoyment compared to men (Harris, Jenkins 2006).

In financial contexts, a study examined 1,359 expert and novice investors and their investment decisions and found that women have significantly lower investment confidence compared to men. Variables such as the size of the investment itself, the age of investor, the total value of portfolio, years of education, and years of business experience were considered and found to be insignificant in explaining investment

confidence and risk taking. Instead, it was found that investor gender was the number one most important explanatory factor (Estes, Hosseini 1988).

Broad meta-analyses of other studies have been conducted as well. One such analysis, conducted by Byrnes, Miller, and Schafer analyzed over 150 research papers on gender differences in risk taking. These studies were coded in regards to "type of task (e.g., self-reported behaviors vs. observed behaviors), task content (e.g., smoking vs. sex), and five age levels". Ultimately they concluded from the studies they examined that male participants are more likely to take risks than females (Byrnes, Miller, and Schafer 1999).

Linda Babcock, an economics professor at Carnegie Mellon found men ask for salary raises more than four times more often than women, and when women do ask, they ask for 30% less (Babcock 2008). Not only that but when asked to describe negotiating men described it as "winning a ball game" whereas women chose "going to the dentist" (Women at Work 2016). These studies demonstrate that women do not fare as well nor enjoy negotiating as much as men.

Beyond salary negotiations, women fundamentally have been found to underestimate their skills and competencies whereas men overestimate. This has been referred to as the "Confidence Gap" (Shipman 2014). In a Cornell University study, men have been found to overestimate their performance and abilities whereas women underestimate (Ehrlinger, Dunning 2002). In the study, men and women were told that they would be given a quiz on scientific reasoning and were then asked to rate how they estimated they would perform on it. After doing so, the participants were given a ten

question quiz. The results were nearly the same for both genders; men scored 7.9 correctly on average versus 7.5 for women.

A person can take steps to manage their appearance and demeanor, but they cannot control the perception of themselves by others. Women are often perceived very differently than men for the same characteristics. In the Heidi vs. Howard study by Columbia University two case studies were given to separate groups and each was asked to evaluate the protagonist in the case. The protagonist in the story is very strong willed, outgoing, and exhibits strong leadership qualities. However, in one case the protagonist was named Heidi and in the other Howard.

When the results were compared, it was found that when the protagonist of the case was given a woman's name, Heidi, she was considered power hungry, unlikeable, self-promoting, and aggressive (Routson 2009). Whereas Howard was seen as the more preferred person to work with. Nearly the same result was found in Harvard Business Review's "A Day in the Life of Alex Sander" case (Collins 2008).

Research has found that leadership behaviors result in positive externalities for men but can create backlash for women. Specifically research has found that women with leadership qualities are viewed as less likable, less hirable, and less promotable (Eagly, Karau 2002). This is demonstrated in Sheryl Sandberg's "Lean In" where she found that success and likeability relate positively for men but negatively for women (Cooper 2013).

Not only that, but when analyzing how men and women are compared differently it was found that women are judged by harder standards than men, men are often considered competent until proven otherwise, and men are considered in regards of

potential future performance whereas women are judged by their actual performance (Williams 1999). Also what is seen as confidence in a man may be seen as charm in a woman (Davis 2013).

Chapter 3: Methodology

To examine gender differences, it was necessary to obtain as much data on the pitches as possible. Two useable data sources were found. The first source, SharkTank.Tvquotes.net, offered data collected through season four, episode nineteen; a total of over 200 pitches. This dataset contained twenty variables with an emphasis on the financials of the pitches. The second data source posted by Halle Tecco contained information on pitches beginning in season one all the way to season seven, episode thirteen; a total of over 500 pitches. Halle Tecco is a coder, entrepreneur, and angel investor who has been included in "30 under 30" by Forbes, "100 Most Intriguing Entrepreneurs" by Goldman Sachs, and "15 Women to Watch in Tech" by Inc. (LinkedIn).

Data Preparation

These datasets complimented each other as each had gaps in the data. The second dataset was missing ask values (Ask amount, Ask Equity, Ask Valuation) for seasons one through six, yet contained data on entrepreneur gender and company industry. The two sets were merged and all partial pitch data after season four episode nineteen was removed. What remained was one data set spanning across four seasons and 235 pitches.

Before moving forward, the data was validated and cleansed. To validate the data, the RAND() function was utilized in Microsoft Excel to create random numbers next to

each row. After doing this, the rows were sorted smallest to largest based upon their randomized values. The data from the pitches in the first ten rows was then validated by watching videos of the pitch found on YouTube as well as ABC's website.

In order to cleanse the data headings were renamed and nonrelevant data was removed. For example, data regarding Guest sharks including Jeff Foxworthy were removed as he was not present across all seasons. In both datasets, null values were removed and "yes" or "no" responses were converted into binary 0's and 1's. In addition, calculated columns were added. Ultimately the final dataset included 35 variables listed below:

1. Season
2. No. in series
3. Company
4. Industry
5. Entrepreneur Gender
6. Revenue
7. Profit
8. Ask Amount
9. Ask Equity
10. Ask Valuation
11. Offer
12. Offer Bin
13. Accepted
14. Accepted Bin
15. Deal Amount
16. Deal Equity
17. Deal Valuation
18. Royalty Deal?
19. Barbara Corcoran
20. Mark Cuban
21. Lori Greiner
22. Robert Herjavec
23. Daymond John
24. Kevin O'Leary
25. Guest
26. # Sharks
27. $ Per shark
28. Ask Valuation / Profit
29. Deal Valuation / Profit
30. Ask Valuation / Revenue
31. Deal Valuation / Revenue
32. Ask Amount / Deal Amount
33. Deal Valuation / Ask Valuation
34. Ask Equity - Deal Equity
35. Ask Valuation - Deal Valuation

Correlation Matrix

To consider the variables and their interactions on a broader level, a correlation matrix was utilized. This matrix can be found in Appendix B: Figure 9. Looking at this matrix, we can see that women correlate most positively with the industries of Children/Education and Fashion/Beauty. Women correlate the least with Consumer Products and Software/Technology. Regarding other metrics, women correlate most positively with profit, offer acceptance, and Barbara Corcoran and most negatively with ask amount and ask valuation.

Men, on the other hand, correlate most positively with the industries of Media/Entertainment and Software/Technology and most negatively with Children/Education and Fashion/Beauty. Regarding other metrics men correlate most positively with ask amount, ask valuation, and Kevin O'Leary while correlating most negatively with profit and Barbara Corcoran.

Linear Regressions

Linear regressions were performed using dummy variables for the industry and gender to control for these factors. However, it was difficult to reach meaningful conclusions in these regards due to the limitations of the data. With only 235 pitches, after breaking down into each category the amount of data points left becomes minimal. Take for example women who accepted offers in the industry category of Lifestyle/Home. We begin with 235 pitches, however only sixty-two of these pitches were from women entrepreneurs. Then after splitting by industry only twenty-four pitches existed in the category of Lifestyle/Home with only six of those pitches

performed by women. After having only six women in this industry, only four received an offer and of those four only two accepted. This leaves a final count of two female entrepreneurs who accepted offers in the industry of Lifestyle/Home.

Due to this limited data, meaningful results in regards to regression analysis were hard to come by. As seen in Appendix A: Figure 8, when considering the variable Deal Valuation, we are only able to obtain an R^2 of 10%. Revenue with a p-value of 0.06, was the most explanatory variable and the next best variable was the industry Business Services with a p-value of only 0.15. Regressions were analyzed for offers, acceptance, industry, deal and ask valuations, and gender but similar, inconclusive results were found.

Chapter 5: Findings

Considering the descriptive statistics in Table 1 for all pitches, entrepreneurs have pretty good odds on the show. Of the 235 participants, 46% of them (132) received offers, and ultimately 46% of them (109) accepted an offer with the sharks. The average revenue for a business on the show is nearly $400,000 and the entrepreneurs typically come on asking to sell 19% of their business for $188,000 for a total ask valuation of nearly $1,500,000.

Table 1: Gender Descriptive Statistics

Gender	# Pitches	% Of Total	# Offered	% Offered	# Accepted	% Accepted of Total	% Accepted of Offered	Avg Revenue	Avg Profit	Avg Ask Amount	Avg Ask Equity	Avg Ask Valuation	Avg Deal Amount	Avg Deal Equity	Avg Deal Valuation
Female	44	28%	28	64%	25	57%	89%	$ 412,943	$ 223,376	$ 162,114	20%	$ 1,137,547	$ 146,000	36%	$ 438,488
Male	88	56%	50	57%	40	45%	80%	$ 411,884	$ 76,757	$ 227,489	18%	$ 1,709,082	$ 207,225	34%	$ 792,860
Mixed	25	16%	9	36%	7	28%	78%	$ 333,887	$ 274,000	$ 183,400	18%	$ 1,308,562	$ 230,714	35%	$ 624,405
Total	157	100%	87	55%	72	46%	83%	$ 399,761	$ 149,011	$ 202,146	19%	$ 1,485,129	$ 188,250	34%	$ 651,473

Women made up 62 of the 235 total pitches, a little over 26% (Table 1). As seen in Table 2, the most popular industries for women were Fashion/Beauty with 22 pitches

and Food/Beverage with 33 pitches. These two industries alone made up over half of all the pitches done by women. Men on the other hand makeup 141 pitches, roughly 60% of all pitches, and had a much more diversified array of pitches. Men made up pitches in every industry category but with their largest concentration in Food/Beverage with 33 pitches and in Fashion/Beauty with 22 pitches.

Table 2: Company Industries by Gender

Industry	Male	Female	Mixed Team	Male	Female	Mixed Team
Business Services	7	2	1	5%	3%	3%
Children / Education	7	10	5	5%	16%	16%
Consumer Products	8	0	4	6%	0%	13%
Fashion / Beauty	22	22	7	16%	35%	22%
Fitness / Sports	14	3	4	10%	5%	13%
Food and Beverage	33	12	5	23%	19%	16%
Green/CleanTech	2	0	1	1%	0%	3%
Healthcare	5	4	0	4%	6%	0%
Lifestyle / Home	14	6	4	10%	10%	13%
Media / Entertainment	8	0	0	6%	0%	0%
Pet Products	3	3	1	2%	5%	3%
Software / Tech	11	0	0	8%	0%	0%
Uncertain / Other	7	0	0	5%	0%	0%
Total	141	62	32	100%	100%	100%

Figure 1 demonstrates that women have very similar average revenues, $413,000 vs. $412,000. They also have nearly three times greater average profit, $233,000 compared to $77,000. Yet they are only asking for on average only 53% of what men are, $954,000 compared to $1,814,000. Although the numbers involved with the deal involve give and take from both the shark and the entrepreneur, the entrepreneur solely controls how much they ask for in the beginning.

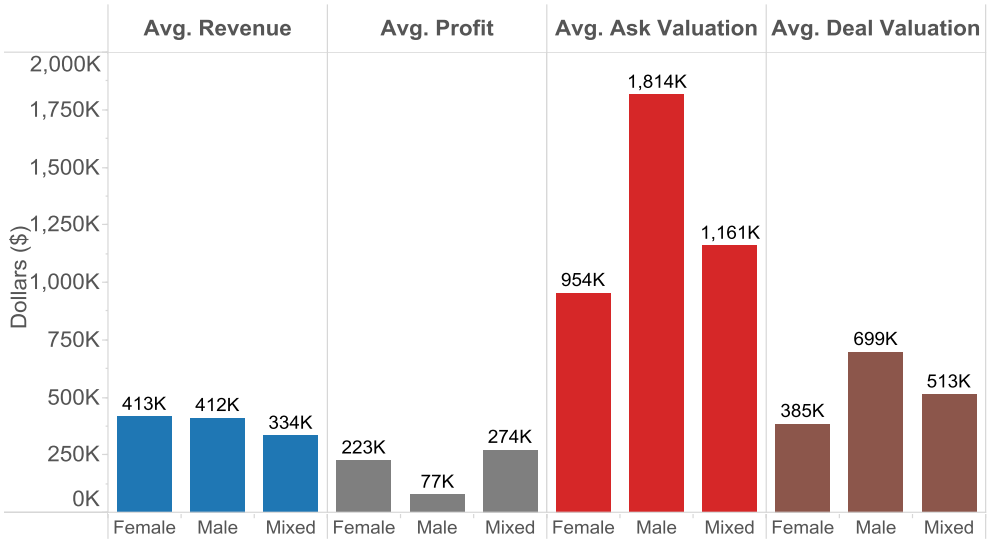

Figure 1: Financial Metrics per Gender

Figure 2 shows that men and women are receiving offers at nearly the same rate, 60% for women vs. 57% for men yet women are more likely to accept them. Women accept the offers they receive 89% of the time vs. only 79% for men. Keep in mind that as shown in Table 1, only 37 women and only 80 men received offers and only 33 women and 63 men accepted them.

The last set of red bars in Figure 2 labeled "% Received in Deal" shows what percentage of the original ask valuation is received in the deal. Women are only receiving 57% of what they ask for on average compared to 65% for men. These figures show that on average, women are asking for lower valuations than men despite having similar quality businesses in terms of revenue. Despite asking for less, they are still ultimately receiving less in the deal and even after receiving less are more likely to accept.

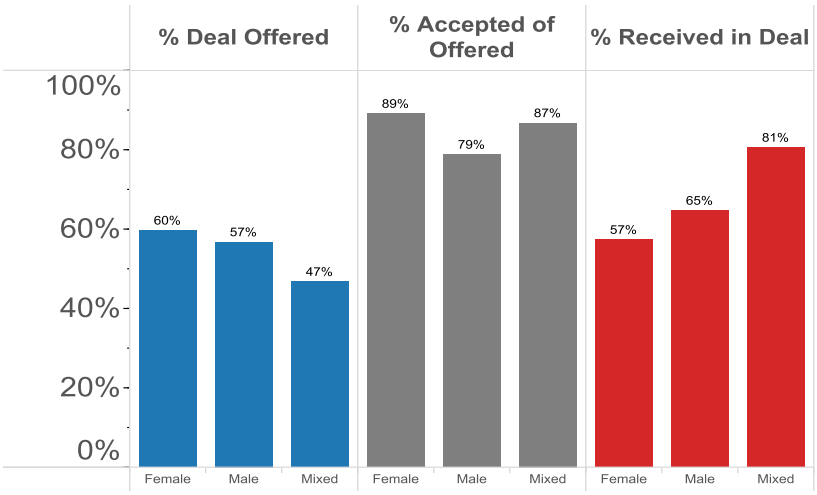

Figure 2: Deal Information

Chapter 6: Discussion

These findings conclude that there are gender differences in venture capital funding on ABC's Shark Tank. The next step is to address my second question: why is this happening? Why are women asking for less and why are they accepting deals at a lesser valuation percentage compared to what they asked for? What is contributing to these differences? To address this, I looked into the industry of the business, the sharks, the entrepreneurs themselves, and societal effects.

Industry

Each product and/or idea on Shark Tank is unique. There are no two that are exactly alike. However, these products can typically be grouped into a single industry. This gives the ability to slice the data and consider if women are asking for less and receiving less due to the industries of their businesses. This is a relevant topic as industry and job preference are brought up frequently in discussions of the wage gap.

Looking at Figure 3, we can see that this is not the case in regards to Shark Tank. On average women are asking for lower valuations than men across the board. In every single industry except one, Food/Beverage, women are asking for less. Not only that, but not a single female entrepreneur pitched an idea in the industries of Green/ Clean Technology, Consumer Products, Media/Entertainment, and Software/Technology.

Despite asking for less, women also receive less of what they asked for in terms of valuation in every industry except for one, Fashion/Beauty. In Fashion/Beauty women on average receive 70% of what they ask for compared to 65% for men, only a 5% greater difference. However when looking at the other industries where men are receiving more, the differences are much greater. Men receive 9% more in of their asking valuations compared to women in Children/Education, 10% more in Fitness/Sports, 19% more in Food/Beverage, 18% more in Healthcare, and a whopping 25% more in Lifestyle/Home.

Looking at these numbers, we can see that the problem is not industry specific. These are not issues isolated to one industry. Although we must also keep in mind the limitations of the data. Industry alone is a very broad. Two products within the same industry can be vastly different with different uses, customer bases, costs, etc. Not only that but these numbers are drawn from a population of only 235 pitches. As mentioned prior, once this n of 235 is broken down by industry, gender, offer, and acceptance, there are few data points per industry. For example, looking at Table 3 the average number of deals accepted per industry is only 8.4. It is problematic to draw strong conclusions

regarding industries with such a small number of data points consisting of vastly different products.

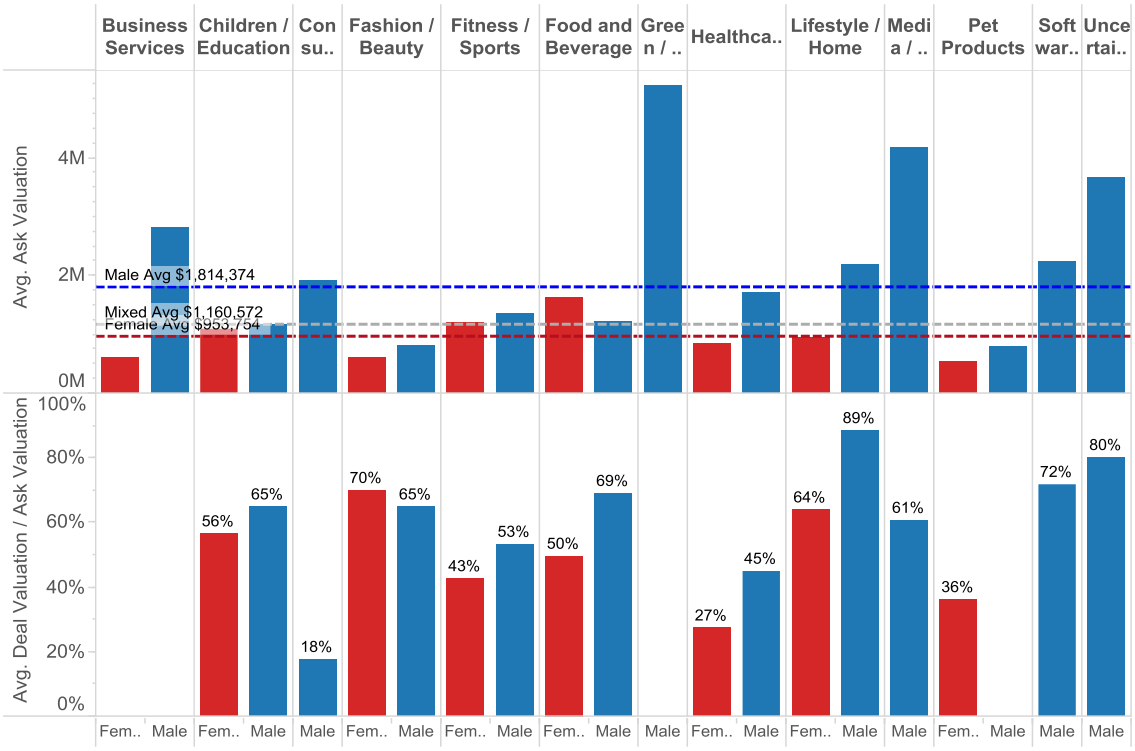

Figure 3: Valuation per Gender across Industries

Table 3: Offer and Deal by Gender

	# Pitches				# Offered				# Accepted			
Industry	Male	Female	Mixed	Sum	Male	Female	Mixed	Sum	Male	Female	Mixed	Sum
Business Services	7	2	1	10	3	-	-	3	-	-	-	0
Children / Education	7	10	5	22	3	7	2	12	2	7	1	10
Consumer Products	8	0	4	12	6	-	3	9	3	-	3	6
Fashion / Beauty	22	22	7	51	12	13	2	27	10	11	2	23
Fitness / Sports	14	3	4	21	8	2	2	12	8	2	1	11
Food and Beverage	33	12	5	50	18	7	3	28	16	7	3	26
Green/CleanTech	2	0	1	3	-	-	-	0	-	-	-	0
Healthcare	5	4	0	9	4	2	-	6	4	1	-	5
Lifestyle / Home	14	6	4	24	9	4	3	16	6	3	3	12
Media / Entertainment	8	0	0	8	6	-	-	6	3	-	-	3
Pet Products	3	3	1	7	-	2	-	2	-	2	-	2
Software / Tech	11	0	0	11	7	-	-	7	7	-	-	7
Uncertain / Other	7	0	0	7	4	-	-	4	4	-	-	4

Sharks

Figure 4 includes information about the Shark's investments in four areas: the number of accepted deals, the percentage of pitches per gender resulting in a deal, average revenue multiple, and percentage of ask valuation received in the deal. Looking at the number of accepted deals Daymond John, Barbara Corcoran, and Mark Cuban are leading with 32, 31, and 31 respectively. Lori Greiner has the least number of deals made with only 14.

What is interesting is the percentage of pitches per gender that result in a deal. This is of the number of entrepreneurs seen, how many of them received a deal. In regards to this, most of the sharks are evenly split. For every shark except Barbara Corcoran, there is only a 2-3% difference in the likelihood of investing in a man versus in a woman. Barbara, on the other hand, invests in 23% of the women she sees compared to only 9% of the men. This is over 2.5 times more often. The only other female shark, Lori Greiner, is not similar in this manner. She invests in 12% of the women she sees and 11% of the men; the difference is negligible.

Going beyond this to the average revenue multiple, defined as the deal valuation divided by revenue, more disparities begin to pop up. This metric evaluates how much money a shark is willing to value a business per dollar of revenue. Considering this measure, each shark gives deals valued with higher revenue multiples to entrepreneurs of their own gender.

For the men: Mark Cuban's deals on average have revenue multiples of 11.73 for men versus 6.85 for women, Robert Herjavec 8.45 to 3.22, Daymond John 8.91 to 6.79,

and Kevin O'Leary a massive 17.37 to 4.37, nearly four times greater. Kevin O'Leary is offering 17.37 dollars of valuation for every one dollar of revenue on average for men versus only 4.37 dollars for women. In comparison, Barbara gives only 3.98 to men versus 6.23 to women and Lori gives 8.13 to men versus 9.97 to women. Revenue is not the full story of the business: market size, debt, sales growth, profit margins, and other financial metrics are all important as well, but this does demonstrate that there are differences in how the sharks invest across genders.

Lastly, there are differences in how much of the original ask valuation is received in the deal. I want to point out that for some of the sharks the mixed percentage is greater than one. This is due to a deal that was given a valuation nearly three times greater than what the entrepreneur asked for, so this is an outlier. The numbers that stand out are with Lori and the male sharks. Lori is the only shark to, on average, give women a greater percentage of what they originally ask for: 80% for women compared to 64% for men. Whereas on average the male sharks are only giving women deal valuations that are 56% of what they ask for versus 72% for men. Individually, on average, Mark Cuban gives men 20% more of their asking valuation compared to women, Robert Herjavec 21% more, and Kevin O'Leary 18% more.

	Barbara Corcoran	Mark Cuban	Lori Greiner	Robert Herjavec	Daymond John	Kevin O'Leary
Number of Accepted Deals						
Female	14	9	4	5	9	4
Male	13	18	9	15	19	13
Mixed	4	4	1	5	4	0
Sum	31	31	14	25	32	17
% of Pitches per Gender Resulting in a Deal						
Female	23%	15%	12%	8%	15%	6%
Male	9%	13%	11%	11%	13%	9%
Mixed	13%	13%	5%	16%	13%	0%
Average Deal Valuation / Revenue (Revenue Multiple)						
Female	6.23	6.85	9.97	3.22	6.76	4.37
Male	3.98	11.73	8.13	8.45	8.91	17.37
Mixed	6.11	8.97	-	7.92	10.78	-
% of Ask Valuation Received in Deal						
Female	47%	64%	80%	54%	55%	51%
Male	48%	84%	64%	75%	61%	69%
Mixed	159%	132%	60%	64%	132%	-

Figure 4: Descriptive Statistics per Shark Investment

In terms of deal negotiations, it is difficult to place blame because there are two parties involved: both the sharks and the entrepreneurs. These differences could be due to how the individual entrepreneurs negotiate or due to how the sharks treat them. The dataset used does not contain information on the negotiation details and counter offers, unfortunately. Ultimately, it is difficult to say why specifically the sharks are investing this way, especially due to the size of the data, but it is clear that with the small number of pitches we do have there are differences in how they invest in each gender.

Entrepreneurs

The individual entrepreneur is arguably the number one contributor to the outcome of an appearance on Shark Tank. The entrepreneur determines the asking prices

and metrics for the sharks to decide upon. These are completely in their control. The sharks only have implications when it comes to the terms and valuations of the deal. In light of this, when considering why women are asking for less I believe that it falls on the individual entrepreneurs.

Women are coming onto the show with comparable businesses to men in terms of revenue but are asking for valuations that are only 53% of what men are asking. In terms of valuation alone this will never leave them with comparable offers. The sharks are participating on the show in order to make money. It is highly unlikely that a shark will offer a higher valuation than what the entrepreneur asks, in fact, in the entire four seasons this has only happened to eight entrepreneurs.

A multitude of studies have found that women are more risk averse than men, and this may partially explain why they are asking for less. The Cornell study prior found that when considering their score on a math test, women underestimated their score while men overestimated, but ultimately they scored essentially the same (Ehrlinger, Dunning 2002). This is very similar to Shark Tank where women and men have comparable businesses, but women are asking for less.

The study performed by Linda Babcock also mentioned earlier found that men are asking for raises four times more often than women, and when women do ask for raises, it is for 30% less. This same concept of risk averseness can help explain why women are not asking for higher valuations at the beginning (Babcock 2008).

The ask details within the pitch cannot explain why women entrepreneurs are giving up more of their business during the negotiation process. Asking for higher

valuations does not have much benefit if they cannot be defended. There are two causes that may explain this. The first potential reason: when negotiating women behave in a more consensus-seeking manner than men (Karpowitz, Mendelberg 2016). This has been shown to have benefits in the corporate world, but it does not have the same benefits when it is the entrepreneur versus the sharks. By having a greater desire to come to an agreement, women may be less likely to negotiate and more likely to accept a less favorable offer. This is, of course, a hypothesis, as I do not have data on the negotiations after the pitch.

The second reason, studies have found that women are less likely to exert power and influence over men (Karpowitz, Mendelberg 2016). This may prove a detriment to female entrepreneurs considering that four of the six total sharks are men. If women are in fact less likely to exert power over men, they may be less likely to dominate the negotiations that occur after the pitch, especially when faced with an intense investor such as Mark Cuban. This may explain why women are getting 80% of what they ask for in deals with Lori Greiner versus only 56% on average with the male sharks.

Women in Venture Capital

The dataset used does not include information on the entrepreneur's intentions, but these may impact the asking and negotiation practices as well. Venture capital is an industry that relies on heavy utilization of personal networks (Giang 2015). When an entrepreneur begins their search for capital they often reach out to friends, family, and colleagues first. If this does not pan out, this is often when they turn to venture capital firms for funding.

Studies have shown that individuals are more likely to like, hire, and promote people similar to themselves (Kaneshige 2015). Examples of this have been mentioned earlier when examining how the sharks offer deals with higher revenue multiples to entrepreneurs of their same gender. This results in a problem for female entrepreneurs seeking venture capital as women only make up 4.2% of senior partners in venture capital firms (Primack 2014). These partners are the decision makers and largely determine who does and does not get offers for funding. As said by Bonnie Crater, CEO of Full Circle CRM: "It's human nature. The guys who graduated from Stanford are funding young guys graduating from Stanford." (Kaneshige 2015).

This might explain why women are majority owners in 36% of small businesses in the United States yet make up only 2.7% of all venture-backed companies from 2011 to 2013 (Diana Project 2014). The Diana Project also reported that businesses with entirely male leadership were four times more likely to get funded than those with even a single woman on the team. Obtaining capital is such a problem for women and minorities that the Harvard Business School Alumni Angels of Greater New York launched the Venture Capital Access Program (Teten 2014). The sole mission of this program is to assist women and minorities in raising venture capital.

Together these institutional and social network barriers may explain why women are asking for less and accepting deals for less. Rather than an error on their part or risk averse attitudes, it may be on purpose. These women may not have any other options. Shark Tank may potentially be their last and only resort left to get funding and get their business up off the ground and running.

Women entrepreneurs on Shark tank may ultimately prefer any offer whatsoever over obtaining a fair value for their business. Giving up more equity for a lower valuation might be worth it if it means they get Mark Cuban on their side. Of course, not all entrepreneurs may have gone through such rigorous efforts to obtain funding before the show, but some may have. Ultimately these barriers to entry and access to funding in the world of venture capital may have a hand in explaining these gender differences found on Shark Tank.

Society

Ultimately all of these individual differences with the sharks, the entrepreneurs, and within venture capital may be due to underlying societal factors. Studies mentioned prior demonstrated that when gender knowledge is removed from the hiring process women are more likely to be hired (Reskin 2013) as well as how men and women are perceived differently for the same characteristics (Eagly, Karau 2002).

This difference in perception can directly be seen in the treatment of men and women on Shark Tank. Often when an attractive business opportunity is pitched, the sharks will get into verbal arguments with each other. This may be done for the entertainment factor, but it also can shape the entrepreneur's decision as to whom they wish to partner with. When the male sharks argue, it is considered normal, and no otherwise unrelated comments are included. However, when Lori and Barbara argue it is often referred to as a "cat fight" on the show.

These differences extend beyond the sharks and impact the entrepreneurs as well. For example, in season five entrepreneur Andrew Kavovit appeared on the show with his

young daughter as shown in Figure 5. Together they demonstrated his product, titled BooBoo Goo. This product is a liquid bandage that does not need to be painfully ripped off and is thus preferable for and marketed toward children (ABC Network). Andrew is a male entrepreneur who brought his child onto the show to demonstrate a product marketed for children. Andrew was treated just as any typical entrepreneur on the show. The sharks proceeded to ask about how he imagined the product, his business plans, etc. Nothing was out of the ordinary.

Figure 5: Andrew Kavovit with BooBoo Goo

In contrast, Shelly Ehler appeared on the show in season three with her two sons as shown in Figure 6. Shelly's product was titled "Show No" which is a poncho/gown apparel item that allows children to change in public without being self-conscious or seen inappropriately by others (ABC Network). She provided the example of an excited child running to their parent after a swim meet wanting to change immediately. Shelly is a female entrepreneur who brought her children on the show to help demonstrate a product marketed for children.

Andrew and Shelly had very similar pitches in regards to style and product, but were they treated equally? No. Mark Cuban asked Shelly what she would do if a buyer wanted to have a meeting with her on the same day as her son's birthday. This is a direct example of how men and women are perceived and treated differently based on societal constructs. It is no problem for a man to be an entrepreneur and run a business while still managing his family, but for some reason this is seen as difficult for a woman to accomplish? This is just one example, but it demonstrates that there are underlying differences in the treatment of men and women on Shark Tank.

Figure 6: Shelly Ehler with Show No

Chapter 7: Limitations

As mentioned prior, this dataset had many limitations, both in regards to size and content. Similarly, the data I did have lacked important information. For example, only a binary yes or no was provided in regards to whether or not the sharks offered a deal. No information was included as to how much the offer was, if there were any counter-offers, or the negotiation history between the sharks and the entrepreneurs. Having this

information would provide many insights into why women are losing more of their companies during the negotiation process.

Outside of the negotiations, information on the entrepreneurs and their businesses could be improved to enrich the analysis. Entrepreneur specific variables such as age, ethnicity, years of experience, as well as business information such as patents, market size, debt levels, sales growth, the number of competitors, the size of the team, and stage in product development would be useful knowledge.

Not only were the prior mentioned measures missing from the data, but some of the most important criteria in investment decision making are qualitative aspects that are difficult to record. Figure 7 below includes the results of a study published in the Journal of Small Business Strategy that interviewed venture capitalists and had them rank 30 investment criteria in order of importance (Sudek 2007). Of the first five most important, only one of them relates to the product itself. The rest relate to the character and demeanor of the entrepreneur, none of which was captured within my dataset. The first five in order are:

1. Enthusiasm of the entrepreneur
2. Trustworthiness of the entrepreneur
3. Sales potential of the product
4. Expertise of the entrepreneur
5. If the investor liked the entrepreneur upon meeting them

Selected Investment Criteria	Ranking
Enthusiasm of the entrepreneur(s)	1
Trustworthiness of the entrepreneur(s)	2
Sales potential of the product	3
Expertise of the entrepreneur(s)	4
Investor liked the entrepreneur(s) upon meeting	5
Growth potential of the market	6
Quality of product	7
Perceived financial rewards (for investors)	8
Niche market	9
Track record of the entrepreneur	10
Expected rate of return	11
Product's informal competitive protection	12
Investor's involvement possible (contribute skills)	13
Investor's strengths fills gaps in business	14
High margins of business	15
Low overheads	16
Nature of competition	17
Ability to reach break-even without further funding	18
Low initial capital expenditures needed (on assets)	19
Size of the investment	20
Product's overall competitive protection	21
Low initial cost to test the market	22
Venture is local	23
Investor understands the business/industry	24
Potential exit routes (liquidity)	24
Presence of (potential) co-investors	26
Formal competitive protection of product (patents)	27

Figure 7: Investment Criteria

Chapter 8: Conclusions

I began this research to answer three questions: do differences exist in how entrepreneurs receive funding based on their gender, if so what is causing these differences, and lastly how can these differences be addressed? I have found that there are in fact differences in how men and women receive funding on Shark Tank. Despite having comparable or better businesses than their male counterparts, women ask for lower valuations and accept deals for less relative to what they asked for compared to men.

When attempting to explain these differences, I found that they cannot be explained by industry. When considering whether they were due to the sharks, the entrepreneurs, or society, the answers became more muddled. It is difficult to completely and accurately account for these differences because various amounts of blame can be placed upon the entrepreneurs as well as the sharks. Moreover, both of these groups may be influenced by underlying societal constructs.

In regards to how to address this problem, I have two recommendations assuming that my hypothesis of Shark Tank as a last resort is false. First, women need to be more confident in themselves and the worth of their businesses when pitching to the sharks. If women want to close the 47% valuation gap, the first step is asking for higher valuations in the first place.

Second, women need to be firmer when negotiating with the sharks. Women are willing to give up more of their company to close a deal, and this may be preventable. Asking for a higher valuation in the beginning of the pitch will not be as effective if they cannot defend this valuation when it comes down to the negotiations process.

Significance

Women make up half of the world's population and as such have strong impacts on society. It is important to understand the disparities in treatment and barriers to opportunity that women face in Shark Tank as well as the realms of business, venture capital, and society.

In order to solve a problem, it must first be identified. These gender differences are valid, and it is important that they are recognized. This research is important because

it serves as the first step of acknowledging the issue and proving that it exists. The next steps involve actively discussing and addressing it. This information in its present state can be used to better prepare entrepreneurs as well as investors before pitching their idea and before making a deal.

Future Research

As mentioned previously, this analysis can be enriched by coding for more variables and collecting data from the rest of the seasons. This dataset only contained data up until season four with 235 pitches whereas the show is currently on season seven with over 580 individual pitches (ABC Network).

Shark Tank has a sister show called "Dragon's Den." This show is the same concept and style as Shark Tank, except that it is filmed and aired in nearly 30 different countries (ABC Network). It is completely feasible to watch the episodes of Dragon's Den from other countries and compare those datasets to the dataset used in this research. When considering the societal effects on the entrepreneurs and the sharks, it would be interesting to explore whether these issues perpetuate across cultures.

Lastly information on post-show performance could provide insights as to whether there are differences in how each gender harnesses the power of the Shark Tank. This information is obtainable through the sequel series, "After the Tank", which shows the impact and results of appearing on Shark Tank for entrepreneurs that accepted offers.

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Appendix A: Linear Regression of Deal Valuation

Fit

N	235
Equation	Deal Valuation = 2.992e+05 - 3.941e+05 Business Services - 1.142e+05 Children / Education - 2.154e+05 Consumer Products - 1.759e+05 Fashion / Beauty - 9.803e+04 Fitness / Sports - 6.719e+04 Food and Beverage - 4.073e+05 Green/CleanTech - 3.74e+04 Healthcare - 1.406e+05 Lifestyle / Home + 1.372e+05 Media / Entertainment - 2.608e+05 Pet Products - 1.022e+05 Software / Tech + 6.264e+04 Male - 2.033e+04 Female + 0.104 Revenue + 0.4493 Profit + 0.01697 Ask Valuation
R^2	0.100
R^2 adjusted	0.029
SE of fit (RMSE)	551928.86

Parameter	Estimate	95% CI	SE	VIF	p-value
Constant	299191	-181481 to 779864	243878	-	0.2212
Business Services	-394144	-934616 to 146328	274218	2.36	0.1521
Children / Education	-114189	-607366 to 378989	250222	4.10	0.6486
Consumer Products	-215420	-743210 to 312370	267784	2.68	0.4220
Fashion / Beauty	-175927	-635877 to 284024	233364	7.14	0.4517
Fitness / Sports	-98027	-582693 to 386639	245904	3.80	0.6906
Food and Beverage	-67185	-518562 to 384192	229014	6.78	0.7695
Green/CleanTech	-407286	-1161738 to 347167	382785	1.42	0.2885
Healthcare	-37398	-613066 to 538271	292076	2.42	0.8982
Lifestyle / Home	-140632	-620171 to 338907	243303	4.19	0.5639
Media / Entertainment	137180	-428062 to 702421	286785	2.09	0.6329
Pet Products	-260818	-857359 to 335722	302665	2.04	0.3898
Software / Tech	-102166	-630751 to 426419	268187	2.48	0.7036
Male	62643	-160020 to 285307	112972	2.36	0.5798
Female	-20330	-264711 to 224051	123991	2.30	0.8699
Revenue	0.1040	-0.005086 to 0.2130	0.055322	1.49	0.0616
Profit	0.4493	-0.2572 to 1.156	0.35848	1.20	0.2114
Ask Valuation	0.01697	-0.01752 to 0.05146	0.017500	1.41	0.3332

H0: $\beta = 0$
The parameter is equal to 0.
H1: $\beta \neq 0$
The parameter is not equal to 0.

Figure 8: Linear Regression of Deal Valuation

Appendix B: Correlation Matrix

N	235																												
r	Business Services	Children / Education	Consumer Products	Fashion / Beauty	Fitness / Sports	Food and Beverage	Green/CleanTech	Healthcare	Lifestyle / Home	Media / Entertainment	Pet Products	Software / Tech	Uncertain / Other	Male	Female	Revenue	Profit	Ask Amount	Ask Equity	Ask Valuation	Offer Bin	Accepted Bin	Deal Amount	Deal Equity	Deal Valuation	Barbara Corcoran	Mark Cuban	Lori Greiner	Robert Herjavec	Kevin O'Leary	Daymond John
Business Services	-	-0.068	-0.049	-0.111	-0.066	-0.110	-0.024	-0.042	-0.071	-0.040	-0.037	-0.047	-0.037	0.043	-0.031	-0.038	-0.027	0.032	-0.061	0.064	-0.111	-0.196	-0.111	-0.165	-0.101	-0.082	-0.082	-0.053	-0.073	-0.059	-0.084
Children / Education	-0.068	-	-0.075	-0.169	-0.101	-0.167	-0.037	-0.064	-0.108	-0.060	-0.056	-0.071	-0.056	-0.185	0.139	0.022	0.024	-0.051	-0.120	-0.046	-0.011	-0.006	-0.049	-0.028	-0.002	0.047	0.091	-0.019	-0.016	0.023	-0.042
Consumer Products	-0.049	-0.075	-	-0.122	-0.073	-0.121	-0.026	-0.046	-0.078	-0.044	-0.041	-0.051	-0.041	0.032	-0.139	-0.033	-0.051	0.009	-0.076	0.011	0.088	0.017	-0.012	0.058	-0.041	0.024	-0.033	0.023	0.045	-0.065	0.077
Fashion / Beauty	-0.111	-0.169	-0.122	-	-0.165	-0.274	-0.060	-0.105	-0.178	-0.099	-0.092	-0.117	-0.092	-0.181	0.200	-0.047	0.177	-0.125	0.124	-0.170	-0.034	-0.014	-0.038	0.011	-0.062	-0.053	-0.022	0.042	-0.014	-0.107	0.122
Fitness / Sports	-0.066	-0.101	-0.073	-0.165	-	-0.163	-0.036	-0.063	-0.106	-0.059	-0.055	-0.069	-0.055	0.043	-0.086	-0.018	-0.029	0.021	-0.005	0.001	0.006	0.038	0.046	0.032	0.016	0.010	0.098	-0.079	-0.060	-0.030	0.006
Food and Beverage	-0.110	-0.167	-0.121	-0.274	-0.163	-	-0.059	-0.104	-0.175	-0.098	-0.091	-0.115	-0.091	0.064	-0.028	0.012	-0.061	-0.062	0.025	-0.032	-0.002	0.059	0.044	0.024	0.055	0.135	-0.049	0.001	0.023	0.056	-0.055
Green/CleanTech	-0.024	-0.037	-0.026	-0.060	-0.036	-0.059	-	-0.023	-0.038	-0.021	-0.020	-0.025	-0.020	0.015	-0.068	-0.038	-0.025	0.071	-0.065	0.112	-0.129	-0.106	-0.060	-0.089	-0.054	-0.044	-0.044	-0.029	-0.039	-0.032	-0.045
Healthcare	-0.042	-0.064	-0.046	-0.105	-0.063	-0.104	-0.023	-	-0.067	-0.037	-0.035	-0.044	-0.035	-0.018	0.082	0.197	0.005	-0.036	-0.035	-0.015	0.042	0.037	0.059	0.031	0.059	-0.012	0.053	0.043	0.075	0.030	-0.015
Lifestyle / Home	-0.071	-0.108	-0.078	-0.178	-0.106	-0.175	-0.038	-0.067	-	-0.063	-0.059	-0.075	-0.059	-0.011	-0.011	0.030	-0.044	0.003	0.062	0.014	0.071	0.024	-0.039	0.001	-0.006	-0.007	-0.048	0.153	0.020	0.014	-0.011
Media / Entertainment	-0.040	-0.060	-0.044	-0.099	-0.059	-0.098	-0.021	-0.037	-0.063	-	-0.033	-0.042	-0.033	0.153	-0.112	0.071	0.005	0.143	-0.110	0.204	0.071	-0.033	-0.007	-0.087	0.126	-0.073	0.066	-0.047	0.011	-0.052	-0.006
Pet Products	-0.037	-0.056	-0.041	-0.092	-0.055	-0.091	-0.020	-0.035	-0.059	-0.033	-	-0.039	-0.031	-0.061	0.065	-0.051	-0.038	-0.052	0.050	-0.060	-0.097	-0.063	-0.061	-0.037	-0.061	0.006	-0.068	-0.044	-0.060	-0.049	0.003
Software / Tech	-0.047	-0.071	-0.051	-0.117	-0.069	-0.115	-0.025	-0.044	-0.075	-0.042	-0.039	-	-0.039	0.181	-0.133	-0.047	-0.015	0.048	-0.038	0.067	0.033	0.077	0.021	0.034	0.019	-0.027	0.033	-0.056	0.054	0.171	0.029
Uncertain / Other	-0.037	-0.056	-0.041	-0.092	-0.055	-0.091	-0.020	-0.035	-0.059	-0.033	-0.031	-0.039	-	0.143	-0.105	-0.053	-0.038	0.280	0.112	0.154	0.003	0.038	0.226	0.139	0.050	-0.068	0.006	-0.044	0.021	0.144	-0.070
Male	0.043	-0.185	0.032	-0.181	0.043	0.064	0.015	-0.018	-0.011	0.153	-0.061	0.181	0.143	-	-0.733	-0.015	-0.141	0.153	-0.045	0.159	0.014	-0.042	0.063	-0.046	0.089	-0.144	-0.015	0.022	0.000	0.094	-0.005
Female	-0.031	0.139	-0.139	0.200	-0.086	-0.028	-0.068	0.082	-0.011	-0.112	0.065	-0.133	-0.105	-0.733	-	0.020	0.104	-0.125	0.080	-0.134	0.042	0.082	-0.046	0.099	-0.066	0.166	0.023	0.012	-0.050	-0.018	0.016
Revenue	-0.038	0.022	-0.033	-0.047	-0.018	0.012	-0.038	0.197	0.030	0.071	-0.051	-0.047	-0.053	-0.015	0.020	-	0.338	0.312	-0.165	0.402	0.019	-0.024	0.228	-0.058	0.227	-0.063	0.072	0.009	0.104	-0.025	0.108
Profit	-0.027	0.024	-0.051	0.177	-0.029	-0.061	-0.025	0.005	-0.044	0.005	-0.038	-0.015	-0.038	-0.141	0.104	0.338	-	0.085	-0.077	0.066	0.097	0.060	0.149	0.012	0.131	-0.029	0.101	0.138	0.094	-0.031	0.079
Ask Amount	0.032	-0.051	0.009	-0.125	0.021	-0.062	0.071	-0.036	0.003	0.143	-0.052	0.048	0.280	0.153	-0.125	0.312	0.085	-	-0.085	0.879	-0.116	-0.168	0.131	-0.144	0.127	-0.094	-0.030	-0.039	-0.056	0.024	-0.061
Ask Equity	-0.061	-0.120	-0.076	0.124	-0.005	0.025	-0.065	-0.035	0.062	-0.110	0.050	-0.038	0.112	-0.045	0.080	-0.165	-0.077	-0.085	-	-0.306	-0.175	-0.096	-0.025	0.059	-0.157	-0.059	-0.030	-0.066	-0.125	-0.097	-0.048
Ask Valuation	0.064	-0.046	0.011	-0.170	0.001	-0.032	0.112	-0.015	0.014	0.204	-0.060	0.067	0.154	0.159	-0.134	0.402	0.066	0.879	-0.306	-	-0.078	-0.158	0.089	-0.179	0.168	-0.091	-0.035	-0.022	-0.018	0.041	-0.044
Offer Bin	-0.111	-0.011	0.088	-0.034	0.006	-0.002	-0.129	0.042	0.071	0.071	-0.097	0.033	0.003	0.014	0.042	0.019	0.097	-0.116	-0.175	-0.078	-	0.822	0.466	0.690	0.422	0.344	0.344	0.222	0.305	0.247	0.351
Accepted Bin	-0.196	-0.006	0.017	-0.014	0.038	0.059	-0.106	0.037	0.024	-0.033	-0.063	0.077	0.038	-0.042	0.082	-0.024	0.060	-0.168	-0.096	-0.158	0.822	-	0.568	0.839	0.513	0.419	0.419	0.271	0.371	0.300	0.427
Deal Amount	-0.111	-0.049	-0.012	-0.038	0.046	0.044	-0.060	0.059	-0.039	-0.007	-0.061	0.021	0.226	0.063	-0.046	0.228	0.149	0.131	-0.025	0.089	0.466	0.568	-	0.546	0.789	0.141	0.427	0.140	0.264	0.374	0.241
Deal Equity	-0.165	-0.028	0.058	0.011	0.032	0.024	-0.089	0.031	0.001	-0.087	-0.037	0.034	0.139	-0.046	0.099	-0.058	0.012	-0.144	0.059	-0.179	0.690	0.839	0.546	-	0.286	0.338	0.318	0.132	0.218	0.202	0.405
Deal Valuation	-0.101	-0.002	-0.041	-0.062	0.016	0.055	-0.054	0.059	-0.006	0.126	-0.061	0.019	0.050	0.089	-0.066	0.227	0.131	0.127	-0.157	0.168	0.422	0.513	0.789	0.286	-	0.129	0.396	0.173	0.270	0.366	0.185
Barbara Corcoran	-0.082	0.047	0.024	-0.053	0.010	0.135	-0.044	-0.012	-0.007	-0.073	0.006	-0.027	-0.068	-0.144	0.166	-0.063	-0.029	-0.094	-0.059	-0.091	0.344	0.419	0.141	0.338	0.129	-	0.071	-0.098	-0.012	0.037	0.102
Mark Cuban	-0.082	0.091	-0.033	-0.022	0.098	-0.049	-0.044	0.053	-0.048	0.066	-0.068	0.033	0.006	-0.015	0.023	0.072	0.101	-0.030	-0.030	-0.035	0.344	0.419	0.427	0.318	0.396	0.071	-	0.008	0.151	0.085	0.102
Lori Greiner	-0.053	-0.019	0.023	0.042	-0.079	0.001	-0.029	0.043	0.153	-0.047	-0.044	-0.056	-0.044	0.022	0.012	0.009	0.138	-0.039	-0.066	-0.022	0.222	0.271	0.140	0.132	0.173	-0.098	0.008	-	0.088	-0.001	-0.048
Robert Herjavec	-0.073	-0.016	0.045	-0.014	-0.060	0.023	-0.039	0.075	0.020	0.011	-0.060	0.054	0.021	0.000	-0.050	0.104	0.094	-0.056	-0.125	-0.018	0.305	0.371	0.264	0.218	0.270	-0.012	0.151	0.088	-	0.436	0.185
Kevin O'Leary	-0.059	0.023	-0.065	-0.107	-0.030	0.056	-0.032	0.030	0.014	-0.052	-0.049	0.171	0.144	0.094	-0.018	-0.025	-0.031	0.024	-0.097	0.041	0.247	0.300	0.374	0.202	0.366	0.037	0.085	-0.001	0.436	-	0.129
Daymond John	-0.084	-0.042	0.077	0.122	0.006	-0.055	-0.045	-0.015	-0.011	-0.006	0.003	0.029	-0.070	-0.005	0.016	0.108	0.079	-0.061	-0.048	-0.044	0.351	0.427	0.241	0.405	0.185	0.102	0.102	-0.048	0.185	0.129	-

Figure 9: Correlation Matrix